

ZOOLOGY.—*Antillesia cardisomae*, n. gen. and sp. (Copepoda: Harpacticoida) from the gill chambers of land crabs, with observations on the related genus *Cancrinola*. ARTHUR G. HUMES, Boston University. (Communicated by Fenner A. Chace, Jr.)

(Received July 22, 1957)

Harpacticoid copepods living in the gill chambers of land crabs have been described from Jamaica and Louisiana, but little is known about these parasites in other regions of the Gulf of Mexico and the West Indies. Several persons, acknowledged below, have kindly supplied me with copepods from crabs of the West Indian and Gulf regions. Additional specimens have been recovered from crabs in the collection of the Museum of Comparative Zoology at Harvard University. This has made possible a redescription of certain features of *Cancrinola jamaicensis* Wilson and *C. plumipes* Humes, and the description of the new genus and species below.

This study was aided by a grant from the National Science Foundation.

#### *Cancrinola jamaicensis* Wilson, 1913

This species was described from specimens taken from the gill chambers of *Cardisoma guanhumi* Latreille at Montego Bay, Jamaica. Since certain inadequacies and discrepancies exist in the original description, the type specimens were sought for study. Unfortunately, the type, U.S.N.M. no. 43506, has disappeared from its vial and can not be located. The paratypes, U.S.N.M. no. 32596, have dried up and are useless for study.

Other specimens of *C. jamaicensis* have been mentioned in published papers or listed in museum collections, but these are probably not very reliable. Dr. A. S. Pearse collected copepods from *Cardisoma guanhumi* on July 15, 1931 (U.S.N.M. no. 69804) at Key West, Fla. These specimens, which he identified as *C. jamaicensis*, have unfortunately become dry and are of no use for study. On August 2, 1931, he found two copepods in *Paguristes punctipes* Benedict at Loggerhead Key, Tortugas, Fla. These, U.S.N.M. no. 69811, are labeled *C. jamaicensis*. I have studied them and find that they do not belong to the genus *Cancrinola*, perhaps being accidentally present. On July 1, 1931, Dr. Pearse found

copepods (U.S.N.M. no. 69807) in the gill chambers of *Microphrys bicornutus* (Latreille) at Tortugas, Fla. These were identified by him as *C. jamaicensis* and are the specimens referred to by Wilson (1935) as living in this crab. I have examined the single specimen remaining in the vial and find that it is not a *Cancrinola* but rather another copepod accidentally present. Pearse (1951) listed *C. jamaicensis* from *Gecarcinus* sp., *C. guanhumi*, and *Panopeus herbstii* H. Milne-Edwards at Bimini, Bahamas. I have studied a specimen (U.S.N.M. no. 88572) from his *Gecarcinus* and find that it is neither *Cancrinola* nor the new genus to be described below. Other specimens (U.S.N.M. no. 88571) from his *Cardisoma* are not *Cancrinola* but belong instead to the new genus to be described on subsequent pages.

Because of the mistaken identity of these copepods, casting doubt on the identification of Pearse's now dried specimens from Key West and those from *Panopeus* at Bimini, it seems best to discount all records concerning *C. jamaicensis* in the preceding paragraph. The only well-substantiated New World record to date is Wilson's original collection at Montego Bay, Jamaica, made in the summer of 1910.

Oswald N. Morris has sent me a single female *Cancrinola* taken from the gill chambers of a *Cardisoma guanhumi* collected on March 23, 1957, on the banks of the Barnett River near the Bogue Islands, Montego Bay, Jamaica. This specimen may be considered as a topotype. It measures 0.684 by 0.156 mm, and the measurements of leg 1 are: length and width of the first podomere of the endopodite 73 by 14 $\mu$ , length of the inner seta 61 $\mu$ , length of the second podomere 24 $\mu$ , and length of the exopodite 59 $\mu$ .

Dr. Peter F. Bellinger, of the University College of the West Indies, has sent me harpacticoid copepods from *C. guanhumi* taken in November 1955, and again in February and May 1956, on the mud flats at Port Henderson, St. Catherine, Jamaica. One of the two species in these lots resembles in all major respects Wilson's *C. jamaicensis*. Although these can not be con-

sidered as topotypes, they come from the same island and from the same host crab. In the absence of type specimens or other comparative material and in view of the desirability of clarifying certain points in the original description, selected features of these *C. jamaicensis* from Port Henderson are described here.

*Female*.—The total length, including the caudal rami, based on five specimens, is 0.691 mm (0.624–0.815 mm). The greatest width of the thorax is 0.146 mm (0.144–0.150 mm). The aesthetask on the fourth podomere of the first antenna (Fig. 1) is  $41\mu$  long (39–43 $\mu$ ), based on seven specimens, tapering smoothly in its distal half, with no constriction. The single egg sac contains 10 eggs (8–13, based on 10 specimens). The average measurements, based on three specimens, of leg 1 (Fig. 2) are: length and width of the first podomere of the endopodite 73 by  $14\mu$ , length of the inner seta  $62\mu$ , length of the second podomere  $22\mu$ , and length of the exopodite  $63\mu$ .

Leg 5 (Fig. 3) lacks the minute setae on the margin of the inner expansion. The lengths of the long setae on the inner expansion of the basal podomere and on the distal podomere are as follows (beginning with the outermost):

| DISTAL PODOMERE |       |       |       |       |
|-----------------|-------|-------|-------|-------|
| 20 $\mu$        | 52    | 33    | 56    | 92    |
| 18–21 $\mu$     | 48–55 | 31–35 | 53–57 | 90–96 |
| INNER EXPANSION |       |       |       |       |
| 52              | 85    | 33    | 29    | 22    |
| 48–57           | 80–88 | 32–34 | 28–31 | 21–22 |

Instead of the condition described by Wilson, the armature of the caudal ramus is like that to be described below for *C. plumipes*, the armature of the second antenna corresponds to that of *C. plumipes*, and the armature of legs 1 and 5 is as indicated in Figs. 2 and 3. One may presume that these minute discrepancies are errors in the original description.

In Wilson's original description of *C. jamaicensis* the female is 0.8 by 0.175 mm and the male 0.88 by 0.17 mm, measurements somewhat larger than my measurements of Jamaican

specimens. The length of Wilson's female falls within my size range, however. His male is larger than any that I have found. Furthermore, his male is even larger than the female, a condition not observed in any of the species of *Cancrincola* which I have studied. The size differences may be caused by Wilson's measurements having been made on fresh and uncontracted specimens.

*Male*.—The total length, including the caudal rami, based on three specimens, is 0.629 mm (0.586–0.715 mm). The greatest width of the thorax is 0.136 mm (0.134–0.140 mm). The first antenna has a small terminal hook. The aesthetask on the fourth podomere is  $52\mu$  long (50–57 $\mu$ , based on seven specimens). Leg 3 (Fig. 4) has a relatively short middle seta on the end of the endopodite. Leg 5 (Fig. 5) has either five or six setae. If six, the two outermost are distally plumose, the next three setae are situated on the end of a small lamella, and the innermost is on a short pedicel. If five (Fig. 6), only two setae are on the lamella. A minute peglike projection is often visible, though sometimes only with difficulty, on both sides of the lamella.

Other specimens of *C. jamaicensis* have been sent to me from St. James, Barbados, by John B. Lewis, of the Bellairs Research Institute of McGill University. They were taken in November 1955 from *Cardisoma guanhumi*.

Dr. Robert L. Blickle has sent me specimens of *C. jamaicensis* collected on May 24, 1957, from *C. guanhumi* at Vero Beach, Fla.

Through the courtesy of Dr. Dorothy E. Bliss I have collected *C. jamaicensis* from the same host crab sent to her from the Lerner Marine Laboratory of the American Museum of Natural History at Bimini, Bahamas. Although several specimens of *Gecarcinus lateralis* (Fremenville) from the same locality were examined, no copepods were found, in spite of the *Cardisoma* in the region being heavily parasitized.

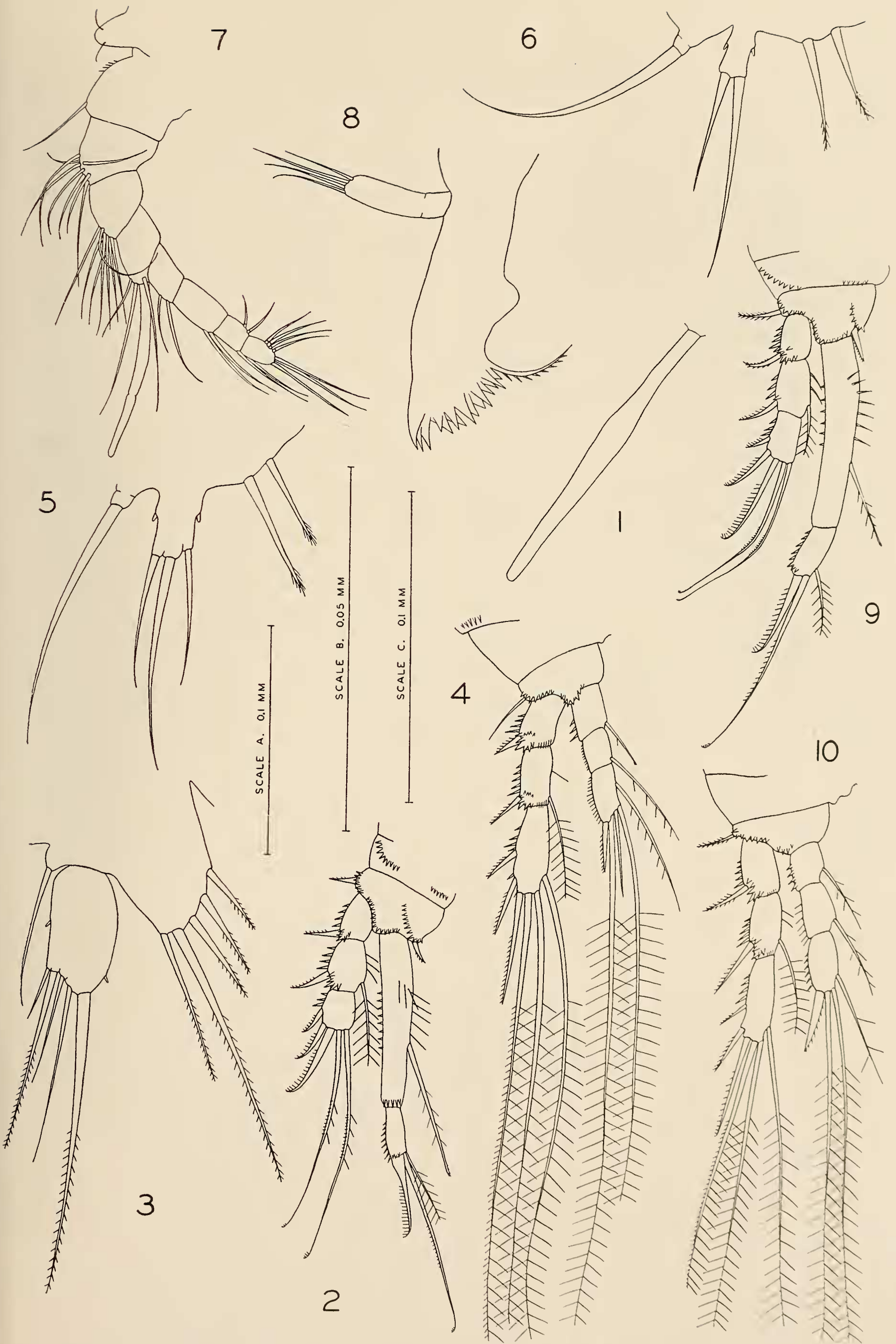
Specimens of *C. jamaicensis* were washed out of the gill chambers of *Cardisoma guanhumi* in the collection of the Museum of Comparative Zoology at Harvard University. The crabs parasitized were from Cannavieiras, Brazil (M.C.Z. no.

All figures were drawn with the aid of a camera lucida. The letter following each figure title refers to the scale at which the figure was drawn.

FIGS. 1–3.—*Cancrincola jamaicensis* Wilson, female: 1, Aesthetask on the first antenna (B); 2, leg 1 (A); 3, leg 5 (C).

FIGS. 4–6.—Same, male: 4, Leg 4 (A); 5, leg 5 (B); 6, leg 5 (B).

FIGS. 7–10.—*Cancrincola plumipes* Humes, female: 7, First antenna (C); 8, mandible (B); 9, leg 1 (A); 10, leg 2 (A).



Figs. 1.-10.— For legend see opposite page.)

5609), Pernambuco, Brazil (no. 5610), Grand Anse, Haiti (no. 5602), St. Kitts (no. 5604), Swan Island (no. 8659), and Bahia Honda, Cuba (no. 5601).

The known distribution of *Cancrincola jamaicensis* is shown on the accompanying map. The copepod probably occurs throughout the range of the host crab, *Cardisoma guanhumi*, which Rathbun (1917) gives as "Bahamas, Southern Florida, West Indies, Texas to São Paulo, Brazil, and Bermudas." The copepod parasitizes *Cardisoma armatum* Herklots and *Sesarma huzardi* (Desmarest) in West Africa, where Humes (1957) reported it from several localities from Dakar to Pointe-Noire, as indicated on the map.

#### *Cancrincola plumipes* Humes, 1941

Several hundred topotypes were collected from the gill chambers of *Sesarma reticulatum* (Say) in July 1941 at Grand Isle, La. Since the original description inadequately mentions certain features, supplementary notes are presented here.

*Female*.—The first antenna and the rostrum are as indicated in Fig. 7. The aesthetask is 52 $\mu$  long (48–56 $\mu$ ) with a noticeable constriction in its distal half. The mandible (Fig. 8) has a weakly subdivided palp bearing four terminal setae. Legs 1–4 have the following spine and setal formula:

|              | leg 1 |     | leg 2 |     |
|--------------|-------|-----|-------|-----|
|              | exp   | end | exp   | end |
| 1st podomere | 1:0   | 0:1 | 1:0   | 0:1 |
| 2d podomere  | 1:1   | 3   | 1:1   | 0:1 |
| 3d podomere  | 5     |     | 6     | 4   |

|              | leg 3 |     | leg 4 |     |
|--------------|-------|-----|-------|-----|
|              | exp   | end | exp   | end |
| 1st podomere | 1:0   | 0:1 | 1:0   | 0:1 |
| 2d podomere  | 1:1   | 0:0 | 1:0   | 0:0 |
| 3d podomere  | 6     | 5   | 5     | 5   |

The average measurements (based on seven specimens) of leg 1 (Fig. 9) are: length and width of the first podomere of the endopodite 83  $\times$  14 $\mu$  (81–84 $\mu$   $\times$  14 $\mu$ ), length of the inner seta 42 $\mu$  (41–43 $\mu$ ), length of the second podomere 22 $\mu$  (21–23 $\mu$ ), and length of the exopodite 64 $\mu$  (62–67 $\mu$ ). Legs 2, 3, and 4 are as shown in Figs. 10, 11, and 12, respectively.

Leg 5 (Fig. 13) has three minute peglike projections on the margin of the distal podomere. The lengths of the setae on the inner expansion

of the basal podomere and the distal podomere are as follows (beginning with the outermost):

| DISTAL PODOMERE |       |       |       |         |
|-----------------|-------|-------|-------|---------|
| 19 $\mu$        | 38    | 28    | 51    | 116     |
| 18–20 $\mu$     | 30–49 | 26–31 | 43–56 | 105–128 |

| INNER EXPANSION |       |       |       |       |
|-----------------|-------|-------|-------|-------|
| 50              | 88    | 29    | 27    | 24    |
| 44–56           | 83–92 | 27–31 | 25–28 | 21–26 |

There are a few minute setae on the inner margin and the outer distal corner of the inner expansion.

The caudal ramus (Fig. 14) is short, its width greater than its length, with a single long terminal seta and smaller setae as indicated in the figure.

*Male*.—The first antenna (Fig. 15) has a small terminal hook and three pectinate setae as shown in the figure. Leg 3 (Fig. 16) has a relatively short middle seta on the end of the endopodite. The spine and setal formula of legs 1–4 is like that of the female. Leg 5 (Fig. 17) has five setae, the two innermost distally plumose, the next two on a lamella, and the outermost pedicellate. The abdomen is 4-segmented.

*C. plumipes* differs from *C. jamaicensis* in having a constriction in the distal half of the aesthetask on the first antenna, in the endopodite of leg 1 being relatively longer and its inner seta distinctly shorter, in having a few minute setae along the inner margin and at the outer distal corner of the inner expansion of leg 5 in the female, in the long setae on the inner expansion and distal podomere of leg 5 in the female being of somewhat different lengths, and in having two setae invariably on the lamella of leg 5 in the male.

Other specimens of *C. plumipes*, recovered from *S. reticulatum*, have been sent to me by Marvin Wass from Alligator Harbor, on the northwest coast of Florida.

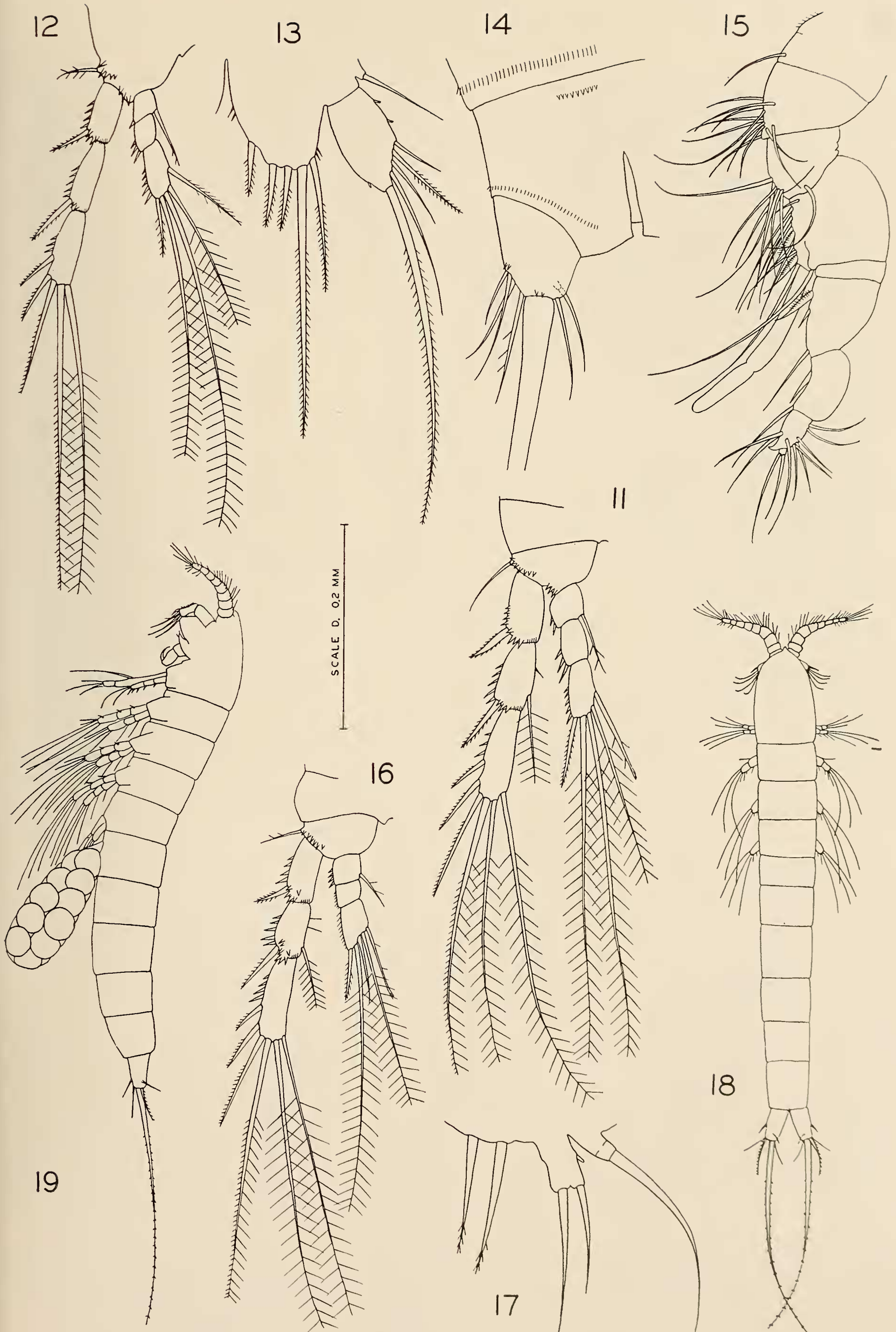
This species was also recovered from washings of the gill chambers of *S. reticulatum* from Tiverton, Rhode Island (M.C.Z. no. 10936). The range of *C. plumipes* probably coincides with that of the host crab, which Rathbun (1917) gives as "from Woods Hole, Massachusetts, to Calhoun County, Texas."

*C. plumipes* has also been recovered from *Sesarma cinereum* (Bosc) at three localities. Over 100 copepods were found in the gill cham-

FIGS. 11–14.—*Cancrincola plumipes* Humes, female: 11, Leg 3 (A); 12, leg 4 (A); 13, leg 5 (C); 14, caudal ramus, ventral (C).

FIGS. 15–17.—Same, male: 15, First antenna (C); 16, leg 3 (A); 17, leg 5 (B).

FIGS. 18, 19.—*Antillesia cardisomae*, n. gen. and sp., female: 18, Dorsal (F); 19, lateral (F).



FIGS. 11-19.—(For legend see opposite page.)

bers of 19 of these crabs at Bears Bluff, Wadmalaw Island, S. C., collected in June 1957 by G. Robert Lunz. These specimens show the features distinctive of *C. plumipes* but are smaller. The average total length of 10 females is 0.549 mm (0.504–0.600 mm) and of 10 males 0.544 mm (0.504–0.576 mm). The measurements of certain parts are proportionately smaller: aesthetask on the first antenna of the female  $48\mu$  (42–53 $\mu$ ), first podomere of the endopodite of leg 1 of the female  $71 \times 14\mu$  (64–78 $\mu \times 14\mu$ ), its inner seta  $35\mu$  (28–42 $\mu$ ), second podomere  $22\mu$ , exopodite of leg 1 of the female  $60\mu$  (53–73 $\mu$ ). The setae of the fifth leg of the female are: 17, 23, 24, 45, 107, 43, 72, 27, 24, and  $23\mu$ , respectively.

Two females from *S. cinereum* at Alligator Harbor, Fla., show variations in the spine and setal formula of the swimming legs. In both the exopodite of leg 1 is 1:0, 1:0, 5. The endopodite of leg 2 in one female is 0:1, 1:1, 3. Leg 4 in the other is 1:0, 1:1, 5 and 0:1, 0:1, 5.

Nine females and 2 males from *S. cinereum* at Jacksonville, Fla. (M.C.Z. no. 6208) conform closely to the specimens of *C. plumipes* from South Carolina.

Presumably the copepod occurs throughout the range of *Sesarma cinereum*, which Rathbun (1917) gives as "from Chesapeake Bay (Arundel-on-the-Bay) to Tampico, Mexico."

#### *Cancrincola longiseta* Humes, 1957

Specimens of this copepod, known previously only from *Goniopsis cruentata* (Latreille) in West Africa, were recovered from the same host crab at Caruca, Rio Maria, Brazil (M.C.Z. no. 6167), Victoria, Brazil (6164), Santa Clara, Rio Mucury, Brazil (no. 8777), Pernambuco, Brazil (no. 6165), Rio de Janeiro, Brazil (no. 6168), Panama (no. 6160), Jeremie, Haiti (no. 6159), and the Bermudas (no. 8730). Apparently the copepod occurs throughout the range of the crab ("Bahamas and Gulf of Mexico to Province of São Paulo, Brazil; Bermudas; West Africa," according to Rathbun, 1917). The accompanying map shows its known distribution, including the localities in West Africa cited by Humes (1957).

#### *Antillesia*, n. gen.

Body elongated, cylindrical. No operculum. Caudal ramus nearly three times longer than wide, bearing terminally an inner long seta and an outer, short, pectinate, recurved seta. Rostrum minute and rounded. First antenna of female 8-jointed, without plumose setae; aesthetask on fourth podomere. First antenna of male 7-jointed and slightly prehensile, but lacking a terminal hook. Second antenna with a single-jointed exopodite. Mandible with a 2-jointed palp. First maxilla, second maxilla, and maxilliped resembling in general those of *Cancrincola*.

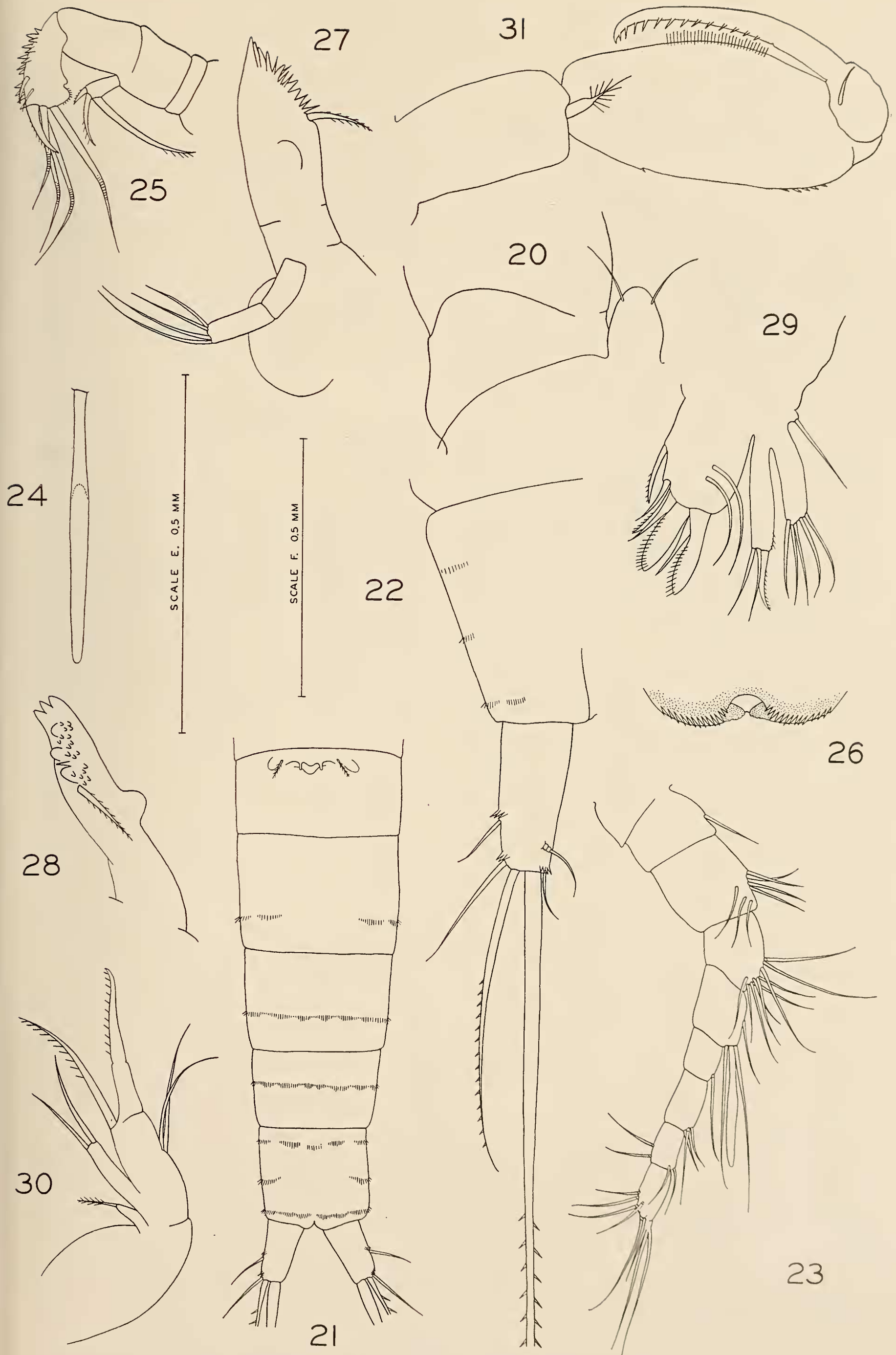
Leg 1 with a 2-jointed, prehensile endopodite distinctly longer than the 3-jointed exopodite. Both rami of legs 2, 3, and 4 three-jointed, the exopodites somewhat longer than the endopodites, with the spine and setal formula as given in the description below. Leg 3 in the male with next to outermost terminal seta of endopodite relatively very short. Leg 5 of the female with the basal podomere bearing five setae on the inner expansion and one outer seta, and the distal podomere having five setae, of which the next to the innermost is the longest. Leg 5 in the male with the basal podomere lacking the inner expansion and bearing only the outer seta, and with the distal podomere having four terminal setae. Female genital field with a pair of plumose setae. Egg sac containing a single layer of eggs and carried with one narrow edge along the ventral abdominal surface. Abdomen (somites posterior to the genital) 4-segmented in both sexes.

*Type species*.—*Antillesia cardisomae*, n. sp. (The generic name alludes to the wide distribution of the genus in the Antilles, and the specific name to the crab host.)

#### *Antillesia cardisomae*, n. sp.

*Type material*.—More than 60 individuals representing both sexes, from the gill chambers of *Cardisoma guanhumi* Latreille collected in November 1955 on a mud flat at Port Henderson, St. Catherine, Jamaica, by Dr. Peter F. Bellinger. Holotype, allotype, and 28 paratypes (18 females and 10 males) deposited in the United

FIGS. 20–31.—*Antillesia cardisomae*, n. gen. and sp., female: 20, Rostrum, dorsal (B); 21, genital segment and abdomen, ventral (D); 22, caudal ramus, dorsal (A); 23, first antenna (C); 24, aesthetask on the first antenna (B); 25, second antenna (C); 26, labrum, ventral (B); 27, mandible (B); 28, oblique view of tip of the mandible (B); 29, first maxilla (B); 30, second maxilla (B); 31, maxilliped (B).



FIGS. 20-31. — (For legend see opposite page.)

States National Museum; the remaining paratypes in the author's collection.

*Female*.—Total length, not including setae, based on eight specimens, 1.051 mm (0.900–1.272 mm). Greatest width of thorax 0.130 mm (0.112–0.141 mm). Body (Figs. 18 and 19) colorless in alcohol. Rostrum (Fig. 20) minute, rounded, with two slender dorsal setae. Abdomen (Fig. 21) 4-segmented, with transverse rows of minute setae. Caudal ramus (Fig. 22) elongated, about 2.8 times longer than wide, bearing terminally a long inner seta ( $570\mu$ ) and a shorter, slightly curved, unilaterally pectinate outer seta ( $135\mu$ ), and four smaller setae as indicated in the figure.

First antenna (Fig. 23) 8-jointed, the aesthetascan on the fourth podomere (Fig. 24)  $40\mu$  long and extending only to the middle of the seventh. Second antenna (Fig. 25) with a very short basal podomere, a long middle podomere incompletely divided on the mid-inner margin and bearing a single-jointed exopodite tipped with three setae, and a terminal podomere having four setae and a spine distally, numerous small spines along its inner edge, and a low protuberance covered with short hairs at the outer distal corner. Posterior margin of labrum (Fig. 26) slightly dentate medially and pectinate laterally. Mandible (Fig. 27) with a swollen base, a 2-jointed palp having four distal setae, and an elongate, indistinctly bipartite blade showing a prominent anterior protuberance and distally (Fig. 28) three ventral teeth, a dorsal seta, and numerous smaller teeth between. First maxilla (Fig. 29) with a broad inner lobe having two slender, curved setae on its anterior surface and distally two broad pectinate setae plus several smaller ones; with two slender outer lobes and an external seta. Second maxilla (Fig. 30) terminating in a clawlike spine and a pectinate seta; other parts as indicated in the figure. Maxilliped (Fig. 31) 2-jointed, the first podomere bearing a distal swollen plumose seta, the second bearing terminally a long curved pectinate claw with a minute seta near its base.

Rami of legs 1–4 3-jointed, except the 2-jointed endopodite of leg 1 (Fig. 32). Average measurements of leg 1, based on 10 specimens: length and width of the first podomere of the endopodite  $98 \times 18\mu$  ( $96\text{--}103\mu \times 17\text{--}20\mu$ ), length of the

inner seta  $102\mu$  ( $90\text{--}110\mu$ ), length of the second podomere  $20\mu$  ( $18\text{--}22\mu$ ), and length of the exopodite  $68\mu$  ( $64\text{--}70\mu$ ). Prominent groups of spines on the distal outer angles of the first and second exopodite podomeres of all four legs and of the second endopodite podomere of legs 2–4 (Figs. 33, 34, and 35). The spine and setal formula of legs 1–4 as follows:

|              | leg 1 |     | leg 2 |     |
|--------------|-------|-----|-------|-----|
|              | exp   | end | exp   | end |
| 1st podomere | 1:0   | 0:1 | 1:0   | 0:1 |
| 2d podomere  | 1:0   | 3   | 1:1   | 0:1 |
| 3d podomere  | 5     |     | 6     | 4   |
|              | leg 3 |     | leg 4 |     |
|              | exp   | end | exp   | end |
| 1st podomere | 1:0   | 0:1 | 1:0   | 0:1 |
| 2d podomere  | 1:1   | 0:1 | 1:1   | 0:1 |
| 3d podomere  | 6     | 5   | 6     | 5   |

Long inner seta on the second exopodite podomere of leg 1 absent.

Leg 5 (Fig. 36) with the inner expansion of the basal podomere having five terminal setae and in some specimens a row of small setae along the outer edge. A single outer seta on the basal podomere. Distal podomere with five terminal setae and a minute blunt peg about midway along the outer edge. The lengths of the setae (beginning with the outermost) as follows:

| DISTAL PODOMERE |       |       |         |       |
|-----------------|-------|-------|---------|-------|
| 13 $\mu$        | 54    | 59    | 116     | 77    |
| 11–17 $\mu$     | 45–58 | 56–64 | 102–128 | 68–81 |
| INNER EXPANSION |       |       |         |       |
| 42              | 94    | 60    | 39      | 29    |
| 38–46           | 86–99 | 53–67 | 29–47   | 23–38 |

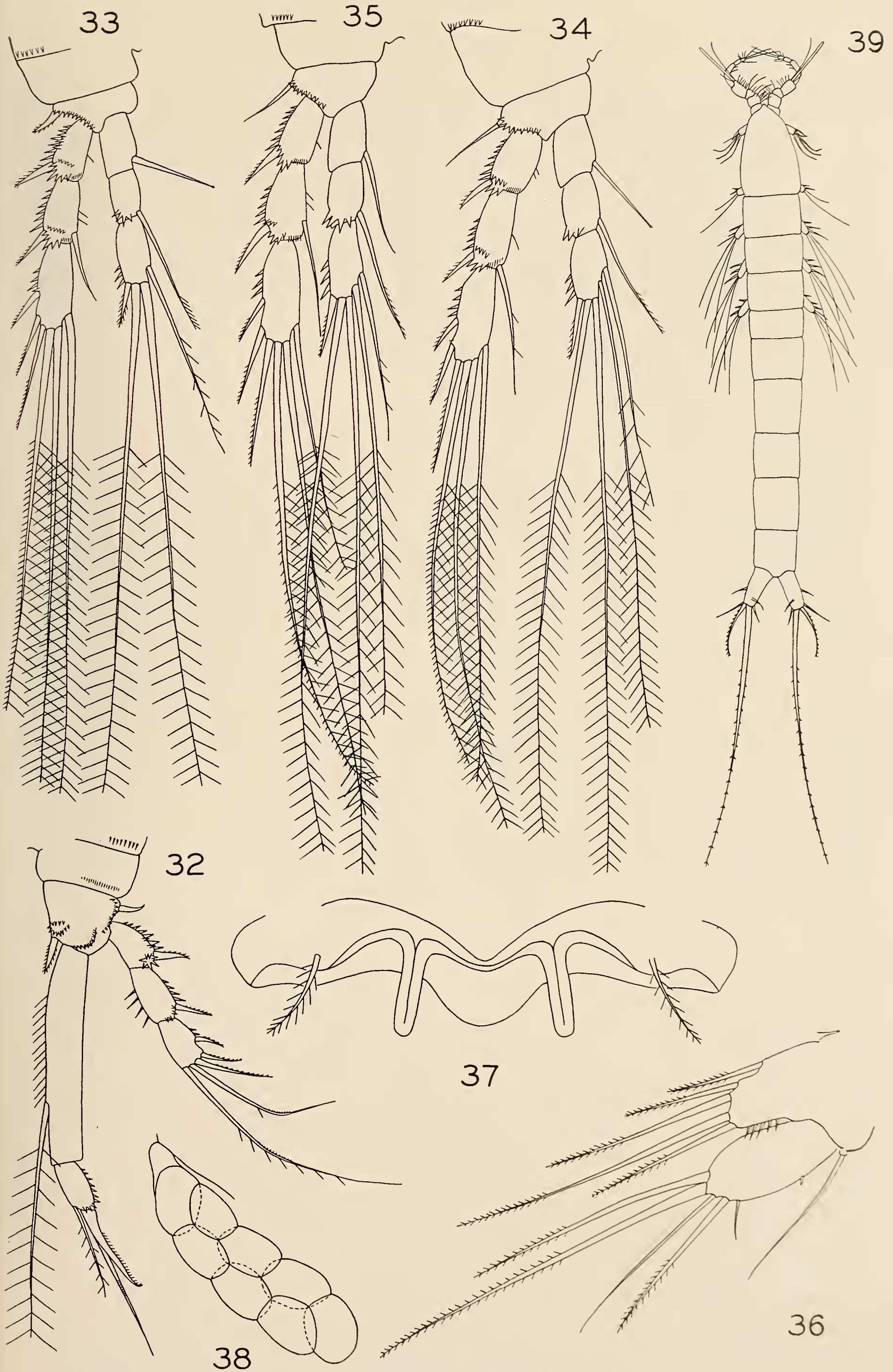
Genital field (Fig. 37) with a single plumose seta, directed posteriorly, on both sides.

Egg sac (Fig. 38)  $386\mu$  long, reaching to slightly beyond the middle of the third abdominal segment. Usually 8 eggs (5–9, based on 6 specimens) in a single layer. Flat plane of the egg sac oriented vertically to the abdomen, so that in ventral view of the entire female the egg sac appears to be a single row of eggs, only the edge of the sac being visible.

*Male*.—Body form as in Fig. 39. Total length, based on 10 specimens, 0.789 mm (0.700–0.943 mm). Greatest width of thorax 0.120 mm (0.112–0.125 mm). Abdomen (Fig. 40) 4-segmented,

FIGS. 32–38.—*Antillesia cardisomae*, n. gen. and sp., female: 32, Leg 1 (A); 33, leg 2 (A); 34, leg 3 (A); 35, leg 4 (A); 36, leg 5 (C); 37, genital field (B); 38, egg sac (E).  
FIG. 39.—Same, male: Dorsal (F).





Figs. 32-39 — (For legend see opposite page.)

with transverse rows of setae. First antenna (Fig. 41) 7-jointed and slightly prehensile, the fourth podomere bearing an aesthetask  $90\mu$  long, extending well beyond the tip of the antenna. Last podomere (Fig. 42) with a slender aesthetask.

Legs 1-4 like those of the female, with the same spine and setal formula, except for the endopodite of leg 3 (Fig. 43) which has the next to the outermost terminal seta much shorter than in the female.

Leg 5 (Fig. 44) with an outer pedicellate seta  $49\mu$  long on the basal podomere. Distal podomere  $20 \times 11\mu$  with 4 terminal setae 12, 56, 61, and  $30\mu$ , respectively, beginning with the outermost. Spermatophore (Fig. 45) oval with a slender recurved neck.

Remaining parts like those of the female.

Oswald N. Morris has sent me specimens of *A. cardisomae* from *Cardisoma guanhumi* found on the banks of the Barnett River, near the Bogue Islands, Montego Bay, Jamaica, March 23, 1957.

John B. Lewis found this copepod in *C. guanhumi* at St. James, Barbados, in November 1955. These specimens differ only slightly from the Jamaican ones. The small setae along the outer edge of the inner expansion of the fifth leg are lacking. Since these setae are sometimes absent in Jamaican specimens, their presence or absence can not be regarded as a distinctive specific character. The lengths of the setae on leg 5 (based on nine specimens) are as follows (beginning with the outermost):

| DISTAL PODOMERE |       |       |        |       |
|-----------------|-------|-------|--------|-------|
| $14\mu$         | 48    | 54    | 113    | 83    |
| 13-14 $\mu$     | 46-53 | 49-59 | 90-121 | 67-98 |
| INNER EXPANSION |       |       |        |       |
| 47              | 82    | 55    | 30     | 23    |
| 36-56           | 74-93 | 32-63 | 27-35  | 19-28 |

The average measurements of leg 1 of 10 females are: length and width of the first podomere of the endopodite  $95$  by  $16\mu$  ( $85-105\mu \times 14-18\mu$ ), length of the inner seta  $92\mu$  ( $86-105\mu$ ), length of the second podomere  $21\mu$ , and length of the exopodite  $68\mu$  ( $64-73\mu$ ).

I have examined specimens from *Cardisoma*

*guanhumi* sent to Dr. Dorothy E. Bliss in 1955 from the Lerner Marine Laboratory at Bimini, Bahamas. In these the small setae along the outer margin of the inner expansion of leg 5 are absent. The lengths of the setae of legs 1 and 5 are somewhat different. The average measurements of leg 1 of 10 females are: length and width of the first podomere of the endopodite  $84 \times 15\mu$ , length of the inner seta  $82\mu$ , length of the second podomere  $18\mu$ , and length of the exopodite  $63\mu$ . The setae of leg 5 are as follows (beginning with the outermost):

| DISTAL PODOMERE |       |       |        |       |
|-----------------|-------|-------|--------|-------|
| $13\mu$         | 37    | 50    | 104    | 64    |
| 11-15 $\mu$     | 33-43 | 43-59 | 96-115 | 56-75 |
| INNER EXPANSION |       |       |        |       |
| 33              | 75    | 49    | 25     | 17    |
| 27-42           | 61-91 | 39-56 | 19-31  | 14-22 |

In nearly all cases the extreme ranges of these setae overlap those of the Jamaican specimens. It does not seem possible, therefore, to regard the Barbados and Bahama specimens as other than representing size variations within populations of the same species.

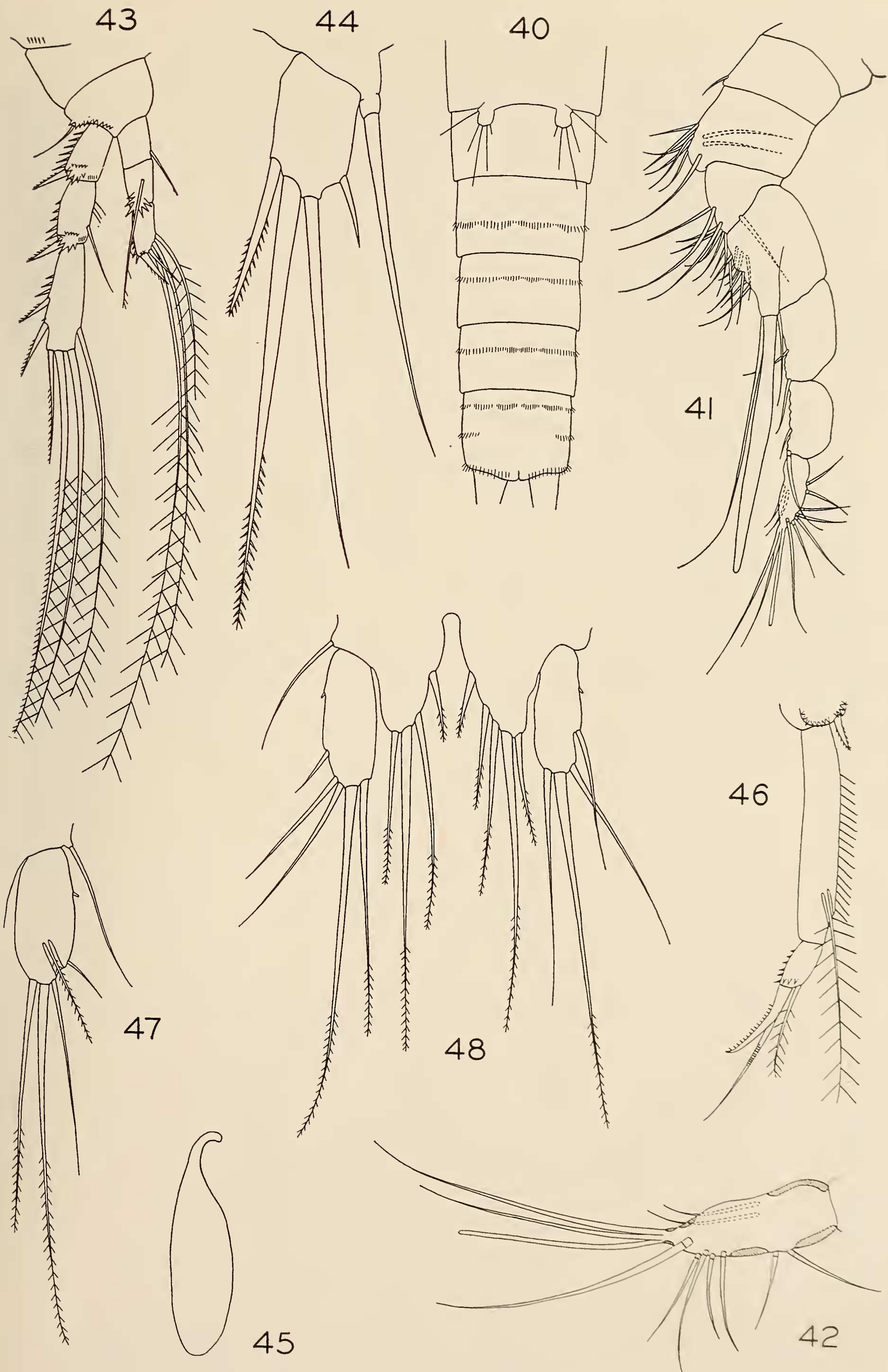
Considerable individual variation exists in this species. Not uncommonly the setae may be partially retracted (Figs. 46 and 47). Occasionally (in 5 out of 30 females dissected) one or more setae on leg 5 may be absent (Fig. 48), giving the leg an asymmetrical appearance. The setae on leg 5 in the same individual may vary markedly in length. In one specimen from Bimini, for example, the three innermost setae on the inner expansion measured  $45$ ,  $19$ , and  $14\mu$  on one side and  $36$ ,  $31$ , and  $15\mu$  on the opposite side. Great care should be exercised in interpreting the significance of setal variation in both number and length unless sufficient specimens are available for study. Description based on a single specimen may not always express the usual condition.

Although specimens of *Gecarcinus lateralis* from the same localities in the Barbados and the Bahamas were examined, no copepods were encountered, indicating a rather narrow host specificity.

Other specimens of *A. cardisomae* were recovered from washings of the gill chambers of *C. guanhumi* from Key West, Fla. (M.C.Z. no.

FIGS. 40-45.—*Antillesia cardisomae*, n. gen. and sp., male: 40, Genital segment and abdomen, ventral (D); 41, first antenna (C); 42, last podomere of first antenna (B); 43, leg 3 (A); 44, leg 5 (B); 45, spermatophore (C).

FIGS. 46-48.—Same, female: 46, Endopodite of leg 1 with partially retracted seta (A); 47, distal podomere of leg 5 with partially retracted seta (C); 48, abnormal leg 5 (C).



Figs. 40-48.—(For legend see opposite page.)

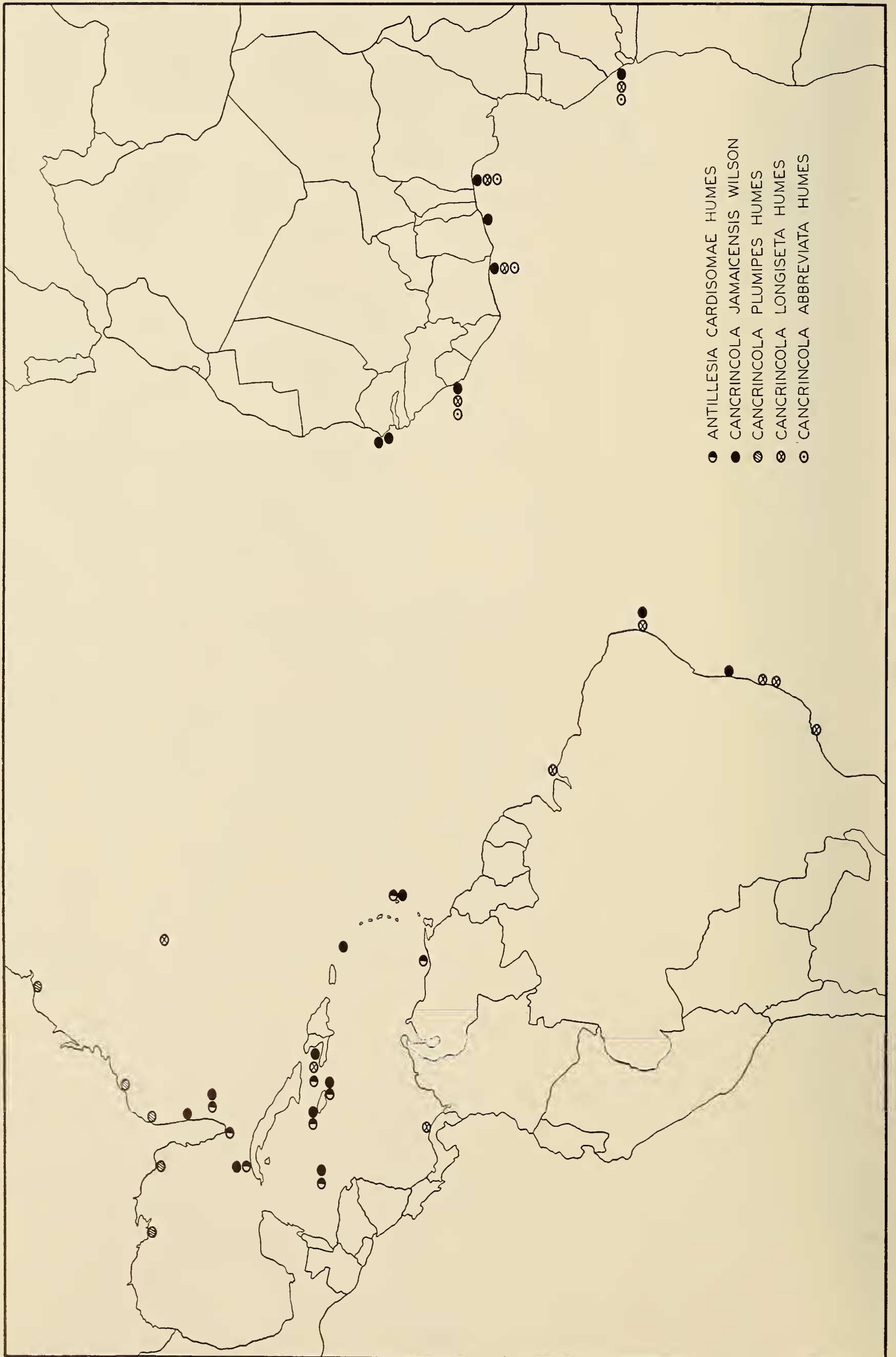


FIG. 49.—Map showing the distribution of the harpacticoid genera *Cancrincola* and *Antillesia*.

5600), Swan Island (no. 8659), Guanta, Venezuela (no. 9054), Grand Anse, Haiti (no. 5602), and Bahia Honda, Cuba (no. 5601). The known range of this copepod extends from the Bahamas through the West Indies to the Barbados, as indicated on the accompanying map.

The new harpacticoid genus *Antillesia* belongs to the Ameiridae, where it seems most closely related to the genus *Cancrincola* Wilson 1913. It differs from the latter, however, principally in having two terminal setae on the caudal ramus, in lacking a seta on the inner margin of the second exopodite podomere of leg 1 and in the spine and setal arrangement of legs 3 and 4, in the next to the innermost seta on the distal podomere of leg 5 in the female being the longest, in the orientation of the egg sac, in the slight sexual modification of the seta on the last endopodite podomere of leg 3 in the male, in the absence of a terminal hook on the male antenna, and in the structure of the fifth leg in the male.

#### SUMMARY

1. *Cancrincola jamaicensis* is redescribed in part and new collection records cited, extending its known range from Bimini, Bahamas, to Cannavieiras, Brazil.

2. *Cancrincola plumipes* is also partly rede-

scribed and new collections from Florida, South Carolina, and Rhode Island recorded. *Sesarma cinereum* is reported as a new host.

3. *Cancrincola longiseta*, originally known only from West Africa, is reported for the first time in the New World, at several localities from the Bermudas to Rio de Janeiro.

4. A new harpacticoid genus and species, *Antillesia cardisomae*, is described from the gill chambers of *Cardisoma guanhumi* at several localities from the Bahamas to the Barbados.

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*Education does not mean teaching people what they do not know. It means teaching them to behave as they do not behave.*—JOHN RUSKIN.